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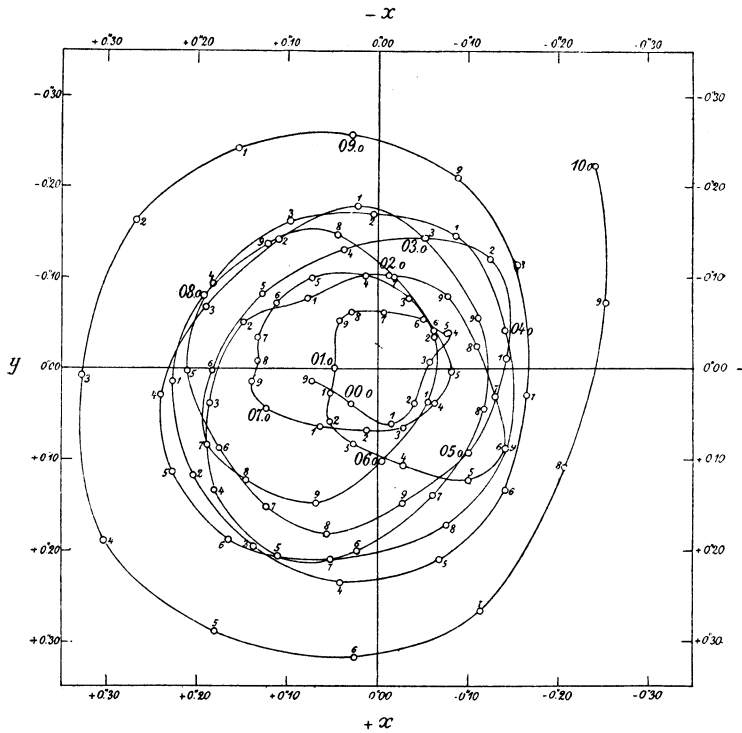
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## GENERAL NOTES.

*Variation of Latitude.*—In the *Astronomische Nachrichten*, No. 4414, Dr. ALBRECHT has published provisional results for the variation of latitude from 1908.0 to 1910.0. The accompanying illustration has been taken from the above-mentioned number of the *Nachrichten*. It is seen at once that the amplitude of the variation during 1909 was much greater than that

Th. Albrecht. Verlauf der Polbewegung 1899.9—1910.0.



reached during any preceding year since observations were begun at the international stations. Dr. ALBRECHT comments upon the curve in the following way:—

“The great increase in the amplitude, during the year 1909, which considerably surpasses that of any preceding year, is of commanding moment. In the next place the very regular

progression of the curve in the years 1907-1909 is to be noticed. During this time the path of the pole is a steadily widening spiral. At the same time one sees, however, from the path of the pole during the first ten years of the latitude service, especially with reference to the maximum of amplitude corresponding to the years 1905 and 1909, that we are still far from being able to represent this motion of the pole by a simple mathematical formula." S. D. T.

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*Mount Tamalpais Excursion.*—In the hope of adding something to the pleasure of the delegates to the recent meeting on Mount Wilson of the International Union for Co-operation in Solar Research, an invitation was extended by the Astronomical Society of the Pacific to all members, asking them to join in an excursion up Mount Tamalpais, planned for September 7th.

Unfortunately, the varying plans of the delegates, after the adjournment on Mount Wilson, so scattered the distinguished visitors that many of them found it impossible to accept the proffered courtesy. A small party was on hand, however, on the morning of the date fixed and a most enjoyable day followed.

Among the visitors who participated were the following: Professor HENRI CHRETIEN, of the Observatory of Nice, France; Professor F. W. DYSON, of the Royal Observatory of Edinburgh; Professor CHARLES FABRY, of the Observatory of Marseilles; Professor E. B. FROST, director of Yerkes Observatory; Professor J. VON HEPPERGER, of the Imperial Observatory of Vienna; Professor and Mrs. H. C. LORD, of the Emerson McMillan Observatory, Columbus, Ohio; Professor BRADFORD, of McMillan Observatory; Professor A. RICCO, of the Astro-Physical Observatory of Catania, Sicily, and Professor A. WOLFER, of the Polytechnic Observatory of Zurich, Switzerland.

The Astronomical Society of the Pacific was represented by Professor and Mrs. ALEXANDER G. MCADIE, of the U. S. Weather Bureau, Mr. and Mrs. JOHN D. GALLOWAY, Mr. and Mrs. CHARLES S. CUSHING, Mr. and Mrs. D. S. RICHARDSON, Professor R. T. CRAWFORD, and Mr. JOSÉ COSTA. There were

also present as local guests of the Society, Civil Engineer C. E. GRUNSKY and Mr. CHARLES E. HUDSON.

About two hours were spent on the mountain, during which lunch was served at the tavern, followed by an exhilarating ride, by gravity car, down to the Muir Woods, where the party was photographed.

The members of the Astronomical Society who acted as hosts on this pleasant occasion have reason to believe that their guests carried away none but pleasant impressions and that the day on Tamalpais will be remembered by them when many other events of their memorable trip to the Pacific Coast are forgotten.

Much credit is due to Professor MCADIE for his active part in arranging for the excursion, and the thanks of the Astronomical Society of the Pacific are also due to Mr. J. J. GEARY, general manager of the Northwestern Pacific Railroad Company and to Mr. C. F. RUNYON, president of the Tamalpais Scenic Railroad Company, through whose courtesy free transportation was furnished to the Society and its guests. Too much cannot be said in praise of the officers and employees of both these companies, all of whom united in showing every attention and kindness to the visiting scientists.

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*Katalog der Astronomischen Gesellschaft—Erste Abteilung, Zweites Stück—Zone  $+70^{\circ}$  bis  $+75^{\circ}$ —Berlin.*—The issuance of this catalogue completes the volumes for the first part of the great undertaking of the Astronomische Gesellschaft. The first part includes the positions of all stars down to the ninth magnitude between  $80^{\circ}$  north declination and  $2^{\circ}$  south. This volume, number two of the series, contains 3,461 stars between  $69^{\circ} 40'$  and  $75^{\circ} 20'$  northern declination at 1855. The observations were made under the direction of Professor L. COURVOISIER at the Royal Observatory at Berlin in the years from 1905 to 1908. The work is uniform with the rest of the series, with one exception, which, it seems to the writer, is an unfortunate departure. In the other volumes the equinox of reference is that of 1875.0, while in this one number the positions are referred to 1905.0. I cannot see a good and suf-

ficient reason for this change. On the other hand, I can foresee numerous errors in the reduction of star-places because of it.

Besides the usual explanatory introduction, and the catalogue itself, there are six appendices.

The Astronomische Gesellschaft is to be most highly complimented and congratulated for thus completing the first division of its work in giving a complete and comprehensive catalogue of star-positions.

R. T. CRAWFORD.

BERKELEY ASTRONOMICAL DEPARTMENT, August 4, 1910.

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*Modern Seismological Instruments at the Lick Observatory.*

—Up to the present the earthquake instruments at the Lick Observatory have been a small Ewing duplex seismograph and a large three-component Ewing disk seismograph. These have rendered efficient service in recording local shocks, but the need has long been felt for instruments capable of collecting the data for more distant shocks, which form so important a part of modern seismological research. Through a generous gift from Hon. W. R. HEARST, the observatory has been enabled to purchase and install two astatic Wiechert seismographs of modern pattern. The stationary mass weighs eighty kilos in the vertical instrument and two hundred kilos in the case of the instrument for registering the horizontal components. The instruments have been placed in a special room in the basement of the meridian circle house. A special break-circuit clock and the necessary self-recording thermographic and barographic instruments are included with the equipment. As soon as the heavy spring of the vertical instrument attains its steady state, the final adjustments will be made, the temperature cases erected, and regular records obtained.

W. W. CAMPBELL.

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*Halley's Comet.*—At a recent meeting of the Royal Society of Edinburgh the subject of the passing of the Earth through the tail of Halley's Comet came up for discussion. The following account is taken from *The Scotsman*:—

Dr. JOHN AITKEN, F. R. S., made a communication entitled "Did the Tail of Halley's Comet Affect the Earth's Atmosphere?" Dr. AITKEN said that one of the theories regarding a comet's tail was that it was

composed of fine dust particles, and so it was thought that if they did pass through the tail of the comet, and if the tail was composed of dust particles, some of these might be found afterwards in the atmosphere of the Earth. Dr. AITKEN described investigations which he had made in May and June, at Morar and at Appin, to discover if the atmosphere had in any way been affected in this way by the passage of the comet. The normal amount of dust particles in the air at Morar when he had carried on such investigations previously was something like two hundred per cubic centimeter. During the time the comet was in the sky, with the wind in the northwest and under anticyclonic conditions, the increase of particles rose to three thousand per cubic centimeter, and there was greater haze than was usual with a northwest wind. All that could be said about it was that this indicated some change connected with the condition of the upper air, but there was no evidence to connect it with the comet. He had also made investigations as to the possible electrification of the air, but at Morar the result was nil. Observations had subsequently been made at Falkirk on the haze in the atmosphere since the comet passed across the sky. There had been an abnormal amount of haze during anticyclonic conditions, but it could not be connected either with the comet. He threw out the hint that the observatories might pay more attention than they did to haze observations.

Professor DYSON, of the Scottish Royal Observatory, said it seemed to be the view of a number of astronomers that the Earth did not go through the comet's tail at all. A bend on the tail, it was suggested, might have prevented the Earth going through it.

Dr. CARSE, of the Royal Observatory, said that at the observatory they made observations on the electrical state of the atmosphere during the time of the comet, and they pretty well agreed with those of Dr. AITKEN. The comet exercised very little influence on the state of the atmosphere. The records on their instrument differed very little before the comet was due to arrive and during the passage of the Earth through its tail, if it actually did pass through. The weather in Edinburgh at the time of the comet was very bad; but the electrical state of the atmosphere was not disturbed. Dr. CRIE, at Kew, had reported the same thing there.

Professor FORBES maintained that there could not be the slightest doubt that the Earth did pass through the tail of the comet. It could not help doing so, and he supported this view by describing views of the comet he had got on shipboard in the Atlantic from the 14th to 18th of May. There was no "sag," he said, in its tail. It was perfectly straight, and that had been a remarkable feature of Halley's Comet on its previous appearance.

Sir DAVID GILL, K. C. B., late of the Cape of Good Hope, exhibited a beautiful series of slides of the comet taken at Johannesburg, at the Cape, in Egypt, and America, which were greatly admired. He said it was very unlikely that they could get any evidence of what the tail of a comet was composed of by looking for dust particles in their own

atmosphere. Nobody knew what the tail of a comet was, and it would be difficult to think that particles in any degree comparable to the ordinary stuff they got in ordinary air could be transported through space at the enormous velocity at which a comet moved.

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*New Astronomer-Royal.*—The King has been pleased to approve of the appointment of Mr. FRANK WATSON DYSON, F. R. S., Astronomer-Royal of Scotland, to the position of Astronomer-Royal, in succession to Sir WILLIAM CHRISTIE, K. C. B., F. R. S., who will be retiring on October 1st.

PROFESSOR DYSON.

Professor DYSON, who is a son of the Rev. WATSON DYSON, a Baptist minister, was born in 1868. He was educated at Nottingham Grammar School, Halifax Heath Grammar School (where he first displayed a marked ability for mathematics), and Bradford Grammar School. In 1886 he entered Trinity College, Cambridge, where he took his degree three years later. He remained at Cambridge as a Fellow till 1893. While at Cambridge he was Smith Prizeman and Isaac Newton Student. He acted as chief assistant to Sir WILLIAM CHRISTIE at Greenwich Royal Observatory from 1894 till the end of 1905, when he received the appointment of Astronomer-Royal for Scotland, and professor of practical astronomy in Edinburgh University, in room of the late Professor COPELAND. During the years he was engaged at Greenwich he assisted Sir WILLIAM CHRISTIE in many important undertakings, and had gone abroad with him on eclipse expeditions. In 1900 they were together in Portugal; in 1905 in Tunis; while in 1901 he was sent by the Astronomer-Royal to observe the eclipse of that year. In 1909 he attended the Astrographic Conference in Paris. At present he is in America in connection with the Solar Conference, which is being held at the Mount Wilson Observatory, California. In 1901 he was appointed a Fellow of the Royal Society, London. He is the author of a large number of astronomical papers contributed to the Royal Astronomical Society, London, of which he was honorary secretary from 1899 to 1905, and to the Royal Society, of which he was for a time a member of Council. His first serious publication was contributed to the Philosophical Transactions of the Royal Society, London. He also contributed to that society's proceedings "Wave Length of H Lines, Derived from Photographs Taken at the Total Eclipse of 1900," and to the publications of the Royal Astronomical Society, London, monthly notices on the photographic charts of the heavens. To the proceedings of the Edinburgh Royal Society his contributions included "The Systematic Motions of the Stars" (1909). In the following year he published "Astronomy—a Handy Manual for Students." Since he came to Edinburgh, the work at the Royal Observatory, Blackford Hill, has been carried on under his direction with great activity. A profound mathematician, and with a thorough knowledge of astronomy, both

theoretical and practical, Professor DYSON is well known and highly esteemed in scientific circles.

SIR WILLIAM CHRISTIE.

Sir WILLIAM CHRISTIE has been Astronomer-Royal for nearly thirty years, which is almost exactly the average length of the tenure of the office by the eight Astronomers-Royal since the institution of the Royal Observatory at Greenwich. It was about the middle of the seventeenth century when the needs of navigation resulted in a scheme for the establishment of a National Observatory. To take proper observations at sea, mariners must have good tables for the movements of the Moon and other celestial bodies. Consulted regarding the preparation of such tables, JOHN FLAMSTEED made proposals which led to the establishment of the observatory at Greenwich in 1675, and to his appointment as Astronomer-Royal. It is of interest to note that he was succeeded in the office by EDMUND HALLEY, who gave his name to the famous comet, and that HALLEY was succeeded by BRADLEY, whose great achievement was the discovery of the aberration of light. Nowadays the office is not, as it used to be, for life. The staff at Greenwich Observatory are civil servants, subject to the same regulations as others, and Sir WILLIAM CHRISTIE goes into retirement, not from any failure of powers, but because he is sixty-five years of age.

He was thirty-six years of age when appointed in 1881, and his twenty-nine years as Astronomer-Royal have witnessed great advancements in astronomy. The transit circle has not yet been ousted as the chief instrument for Greenwich's traditional work, but important work is also done by the photographic plate, which in other departments has almost completely displaced visual observation. Under the retiring Astronomer-Royal, the observatory has been largely rebuilt, and its instrumental equipment greatly improved. Not being endowed with millions for the provision of giant telescopes, Greenwich has not competed with America in sensational discoveries, but has gone on its quiet way, piling up year after year those observations of the places of the stars which will be the groundwork of the astronomy of the future. A large share has been taken by Greenwich in the preparation of the great photographic atlas and catalogue of the stars. In spectroscopic work, too, it has kept abreast of the times.—*The Scotsman*.

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*Doctorates.*—*Science* for August 19th gives tables showing the doctorates conferred by American universities at the 1910 commencements. Only two in astronomy were given—one by the University of Cincinnati to ELLIOTT SMITH, and the other by the University of Pittsburgh to ROBERT HORACE BAKER. Mr. SMITH's thesis was entitled "Personal Equation and Its Variation," and Mr. BAKER's, "The Spectroscopic Binary, *Beta Aurigæ*."



*Astronomical and Astrophysical Society of America.*—The eleventh annual meeting of the Astronomical and Astrophysical Society of America was held at Harvard College Observatory August 17th-19th. Thirty papers upon various phases of astronomical work were presented. Several of the foreign astronomers who later attended the Solar Conference at Mount Wilson were present. Professor EDWARD S. PICKERING was re-elected president of the society.

*A New Observatory.*—At Denison University, Granville, Ohio, the new astronomical observatory, presented by Mr. AMBROSE SWASEY, of Cleveland, was opened on June 15th. In the afternoon an address on "The Contribution of Astronomy to General Culture" was given by EDWIN B. FROST, of the Yerkes Observatory, and in the evening an illustrated lecture on "The Revelations of the Telescope" was delivered by JOHN A. BRASHEAR, of Pittsburgh.

The observatory is a very beautiful structure of white marble, and its interior finish is in excellent harmony with the elegant exterior. The principal instrument is a nine-inch telescope, with object-glass by the J. A. Brashear Company, with the latest style of mounting by Warner & Swasey, complete in every detail, and with a filar micrometer by the same firm, of which the donor is vice-president. A fine four-inch combined transit and zenith telescope is also provided, together with a chronograph, all by the same makers. The equipment also includes two Riefler clocks, for mean and for sidereal time, and a sidereal clock for the dome. The observatory is very well situated upon a high ridge commanding the horizon, and is admirably adapted for its purpose, principally educational, but the equipment is also sufficient for useful contributions to research.—*Science*, June 24th.

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*The Solar Conference.*—At another place in this number of the *Publications* Professor WILSON has given a detailed account of the fourth Conference of the International Union for Co-operation in Solar Research. The list of members of the conference shows that many noted astronomers and physicists were present, and it was certainly a rare treat for some of us western astronomers, who have not been able to travel

extensively, to meet so many distinguished scientists, some of whose names have been known to us for a great many years. Professor WILSON'S account is confined largely to the proceedings of the formal meetings of the conference, but I venture to suggest that the informal meetings in twos and threes and groups were equally important. Life at the Hotel Maryland, a morning at the instrument shops and physical laboratory, a garden party and a banquet, the trips up and down the mountain, and three days together on its summit gave many opportunities to bump up against one's old and new friends in order to compare notes, to discuss many questions, and to listen to an occasional good story.

Many interesting things were seen at the Pasadena offices, instrument shop, and physical laboratory, not least of which were the instruments with which the five-foot mirror was ground and that with which it is proposed to grind the 100-inch mirror when a suitable piece of glass is obtained. The rejected piece, occupying a corner of the shop, seemed to attract considerable attention. The glass is some ten or twelve inches thick and it is this element of thickness that makes the casting of a suitable piece difficult. Professor RITCHEY now has plans for building up a disk from three layers of glass, with intervening air spaces and various connecting pieces. He has tried it with a 30-inch reflector and is very positive that the plan will work satisfactorily for the 100-inch.

Mount Wilson is 5,886 feet high and the climb from Pasadena by the new wagon road was rather slow. The grades are steep, the turns too short to use four horses, there is no place to change horses, the day was hot, and the teams, hauling three-seated wagons with six passengers each, were nearly exhausted when the summit was reached. The trail is shorter and altogether a more agreeable way of reaching the summit.

The instrumental equipment on Mount Wilson consists of the Snow horizontal telescope, the 60-foot tower telescope, the 5-foot reflector, and the 150-foot tower telescope. The reflector was used by Professor RITCHEY on all three nights to show interesting objects to members of the conference. The seeing was good most of the time, and some fine views were obtained, the ring nebula in *Lyra* and *Saturn* being perhaps the most interesting objects shown. In the museum there were

exhibited many window transparencies made from negatives taken with the 5-foot reflector. These attracted a great deal of attention and are certainly very remarkable photographs. They seemed to the writer to stand in a class by themselves. The 150-foot tower telescope and observatory are the oddest looking combination in the world. The massive steel tower, with the little dome on top, looks about as much like the conventional observatory as a huge policeman with a little helmet perched on the crown of his head. The tower is not yet completed, but there is every reason to believe that it will prove eminently satisfactory.

The Smithsonian Observatory, with its equipment for the study of solar radiation, was also a point of interest to many.

Afternoon tea at the "monastery," served by the young lady assistants, added much to the pleasure of the busy days on the mountain top. To those who visited the observatory for the first time, one of the most impressive sights was the view of the valley at night, which was literally ablaze with the myriads of electric lights shining forth from Pasadena, Los Angeles, Long Beach, and neighboring towns. No such brilliant constellations were ever seen in the heavens.

The fourth conference will long be remembered. The warm hospitality of Dr. and Mrs. HALE, the thoughtful care and interest shown by Dr. HALE's co-workers, and the charming bit of color added by the young lady assistants will not soon be forgotten.

S. D. T.

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